



Kentucky Transportation Cabinet

Highway District 6

And

_____ **(2), Construction**

Kentucky Pollutant Discharge Elimination System

Permit KYR10

Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

Bridge Replacement over the Licking River (KY 22)

Pendleton County

Contract ID #####

Six Year Plan 6-1048

Revised
1-28-08

Project Information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District 6
2. Resident Engineer: Mr. Mike Bezold PE
3. Contractor Name: (2)
 Address: (2)
 Phone number: (2)
 Contact: (2)
 Contractors agent responsible for compliance with the KPDES
 permit requirements: (3)
4. Contract ID Number: (2)
5. Route (Address): KY 22, Falmouth, KY
6. Latitude/Longitude (project mid-point) 38 °40' 41"N, 84° 19' 31"W: (1)
7. County (project mid-point): Pendleton County
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

1.0 SITE DESCRIPTION.

- 1) Nature of construction activity (from letting project description). Replacement of bridge and the approaches of KY 22 over the Licking River in Pendleton County.
- 2) Order of major soil disturbing activities. (2) and (3)
- 3) Projected volume of material to be moved. (1)
- 4) Estimate of total project area (acres). 20 acres
- 5) Estimate of area to be disturbed (acres). 12 acres
- 6) Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information. (1)
- 7) Data describing existing soil condition. (According to the US Agriculture Soil Survey for this area, the soils consist of 49% Elk silt loam, 16% Cynthiana - Rock outcrop complex, 15% Nolin silt loam, 9% Otwell silt loam, 7% Woolper silty clay loam, 3% Cynthiana silty clay loam).
- 8) Data describing existing discharge water quality (if any). Existing discharge is in the form of point discharges with little to no BMPs associated with them.
- 9) Receiving water name. Licking River
- 10) TMDLs and Pollutants of Concern in Receiving Waters. There are no TMDLs in this section of the Licking River. However, this section of the Licking River is an outstanding state resource water, so habitat and hydrography are important.
- 11) Site Map. Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.
- 12) Potential sources of pollutants. The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

2.0 SEDIMENT AND EROSION CONTROL MEASURES.

2.1 Erosion Control Sheets. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

The following non-structural BMPs will be implemented throughout the project duration:

- Sediment control BMPs will be maintained when the sediment reaches 1/3 the depth of the BMP.
- Appropriate stock of straw ECB shall be available onsite at all times
- Straw erosion control blanket (ECB) or blown straw shall be applied within 24 hours of the cessation of the land disturbing activity. If blown straw is used, the blower shall be kept on-site during land disturbing activities.
- Disturbed areas shall be stabilized prior to a rain event
- EPSC/SWPPP inspections shall be performed at least twice a week.

2.2 Annotations. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as "Do Not Disturb" until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMPs shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMPs in place before being disturbed.

2.3 Disturbed Drainage Areas. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

- A) Construction Access.** This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with straw ECB and a designated construction entrance will be installed.
- B) Sources.** At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
- C) Clearing and Grubbing.** The following BMPs will be considered and used where appropriate.

- 1) Leaving areas undisturbed when possible.
- 2) Silt Basins to provide silt volume for large areas.
- 3) Silt Traps Type A for small areas.
- 4) Silt Traps Type C in front of existing and drop inlets which are to be saved.
- 5) Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
- 6) Brush and/or other barriers to slow and/or divert runoff.
- 7) Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
- 8) Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
- 9) Non-standard or innovative methods.

At the beginning of the clearing and grubbing, the Contractor will stabilize both the left and right banks of the Licking River per the Erosion Control Sheets.

D) Cut and Fill and Placement of Drainage Structures. The BMP Plan will be modified to show additional BMPs such as:

- 1) Silt Traps Type B in ditches and/or drainways as they are completed.
- 2) Silt Traps Type C in front of pipes after they are placed.
- 3) Channel Lining
- 4) Erosion Control Blanket
- 5) ECB and/or seeding for areas where construction activities will be ceased for one day or more.
- 6) Non-standard or innovative methods.

E) Profile and X-Section in Place. The BMP Plan will be modified to show elimination of BMPs which had to be removed and the addition of new BMPs as the roadway was shaped. Probably changes include:

- 1) Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
- 2) Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
- 3) Additional Channel Lining and/or Erosion Control Blanket.
- 4) Temporary Mulch and/or seeding for areas where construction activities will be ceased for one day or more.

F) Finish Work (Paving, Seeding, Protect, etc.). A final BMP Plan will result from modifications during this phase of construction. Probable changes include:

- 1) Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMPs which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.

- 2) Permanent Seeding and Protection.
- 3) Placing Sod.
- 4) Planting trees and/or shrubs where they are included in the project.

G) Post Construction. BMPs including Stormwater Management Devices such as velocity dissipation devices and Karst policy BMPs to be installed during construction to control the pollutants in stormwater discharges that will occur after construction has been completed are:

- Turf reinforcement mats: TRMs will be used in areas of concentrated flow within the project limits.
- Bank stabilization with established root materials: Existing trees along the right bank (facing downstream) will be cut at ground level to allow for equipment in the area to build the bridge deck. Trees at the waters edge will not be completely cleared and grubbed in order to leave live roots in the bank for stabilization. Trees further up the bank will be cleared and grubbed and bank stabilization procedures below will be followed.
- Bank stabilization with live stakes: The existing left bank (facing down stream) of the Licking River will be disturbed during construction. The first 10 feet of the banks will be stabilized by sloping them back at about a 3:1 slope, seeding and mulching, and treated with erosion control blanket. This will provide temporary stabilization. During the early spring, live stakes will also be placed to provide long-term stabilization. The main vegetation selection criteria were plant height and whether the stakes were native species.
- Bank stabilization with container plantings: The upper right and left banks (facing down stream) of the Licking River will be disturbed during construction. These disturbed areas will be stabilized by re-grading the areas to a 3:1 slope, installing container plantings, and seeding and mulching. The grass seed and mulch will provided short-term stabilization while the plantings will provide long-term stabilization. The main vegetation selection criteria were plant height and whether the plantings were native species.
- Enhanced silt trap: Enhanced silt traps will be used in areas where concentrated flow makes an abrupt change in flow direction or an abrupt grade change. Enhanced silt traps will be used to control grade, reduce flow velocity, and capture silt from headwaters before reaching the Licking River.
- Spill containment areas: Detention/containment basins for capturing accidental spills on the newly constructed bridge deck will be provided in accordance with KYTC's Design Memorandum No. 12-05 (Karst Policy). The detention containment basin will have a minimum volume of 10,000 gallons. Basins will be designed to maximize the flow length between the entrance and exit.

Example drawings for these BMPs are attached. Though these drawings are not detailed design drawings, they provide the guidance needed to design and construct them.

3.0 OTHER CONTROL MEASURES.

- 1) Solid Materials. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.
- 2) Waste Materials. All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.
- 3) Hazardous Waste. All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there are any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.
- 4) Spill Prevention. The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff. (3)

2.4 Good Housekeeping. The following good housekeeping practices will be followed onsite during the construction project.

- 1) An effort will be made to store only enough product required to do the job.
- 2) All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- 3) Products will be kept in their original containers with the original manufacturer's label.
- 4) Substances will not be mixed with one another unless recommended by the manufacturer.
- 5) Whenever possible, all of the product will be used up before disposing of the container.
- 6) Manufacturers' recommendations for proper use and disposal will be followed
- 7) The site contractor will inspect daily to ensure proper use and disposal of materials onsite.

2.5 Hazardous Products. These practices will be used to reduce the risks associated with any and all hazardous materials.

- 1) Products will be kept in original containers unless they are not re-sealable.
- 2) Original labels and material safety data sheets (MSDS) will be reviewed and retained.

- 3) Contractor will follow procedures recommended by the manufacturer when handling hazardous materials.
- 4) If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed.

2.6 The following product-specific practices will be followed onsite:

- A) Petroleum Products.** Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- B) Fertilizers.** Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
- C) Paints.** All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.
- D) Concrete Truck Washout.** Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water.
- E) Spill Control Practices.** In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:
- 1) Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
 - 2) Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
 - 3) All spills will be cleaned up immediately after discovery.

- 4) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- 5) Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- 6) The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- 7) Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations. Spills will be addressed in the "dry", and will not be "washed away" to clean.

4.0 OTHER STATE AND LOCAL PLANS. This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

5.0 MAINTENANCE. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

Maintenance of BMPs during construction shall be a result of twice a week and post rain event inspections with action being taken by the contractor to correct deficiencies within three working days.

Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. Post-construction BMP maintenance will be covered in the cabinet's SMS4 permit under MCM 5 activities.

6.0 INSPECTIONS. Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- 1) All erosion prevention and sediment control measures will be inspected by the Contractor at least twice each week.
- 2) Inspections will be conducted by individuals that have received Kentucky Erosion Prevention and Sediment Control (KEPSC) training or other qualification as prescribed by the Cabinet that includes instruction concerning sediment and erosion control.
- 3) Inspection reports will be written, signed, dated, and kept on file.
- 4) Stabilization of disturbed areas shall be performed within 24 hrs of the cessation of the land disturbing activity.
- 5) Disturbed areas shall be stabilized prior to a rain event.
- 6) Sediment control BMPs will be maintained when the sediment reaches 1/3 the depth of the BMP.

- 7) All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of being reported and completed within three working days
- 8) Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- 9) Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- 10) Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- 11) All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

7.0 NON-STORM WATER DISCHARGES. It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- 1) Water from water line flushings.
- 2) Water from cleaning concrete trucks and equipment.
- 3) Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- 4) Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

8.0 GROUNDWATER PROTECTION PLAN.

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

Contractor's statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2, require the preparation and implementation of a groundwater protection plan, and will or may be conducted as part of this construction project: (2)

_____ (e) Land treatment or land disposal of a pollutant;

_____ (f) Storing, treating, disposing, or related handling of hazardous waste, solid waste or special waste, or special waste in landfills, incinerators, surface impoundments, tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ (g) Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ (j) Storing or related handling of road oils, dust suppressants, or deicing agents at a central location;

_____ (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the 401 KAR 5:037 Section 3. (3)

Elements of site specific groundwater protection plan:

- (a) General information about this project is covered in the Project information;
- (b) Activities that require a groundwater protection plan have been identified above;
- (c) Practices that will protect groundwater from pollution are addressed in Section 3 - Other Control Measures.
- (d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
- (e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
- (f) Groundwater plan activities will be inspected during the EPSC inspections
- (g) Certification (see signature page.)

Contractor and Resident Engineer Plan Certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Contractor and Resident Engineer Certification:

(3)
Signed _____ title _____ , _____
typed or printed name¹ signature

(2)
Signed _____ title _____ , _____
typed or printed name² signature

1. *Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 300 Fair Oaks Lane, Frankfort, Kentucky 40601. Reference the Contract ID number and KPDES number when one has been issued.*
2. *KYTC Note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 300 Fair Oaks Lane, Frankfort, Kentucky 40601 Reference the Contract ID number and KPDES number when one has been issued.*

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor Name:

Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____ title _____ , _____
typed or printed name *signature*

- 1. Sub Contractor Note: To be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 300 Fair Oaks Lane, Frankfort, Kentucky 40601. Reference the Contract ID number and KPDES number when one has been issued.*